

DISCUSSION OF THE AMENDMENT

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2006/0010619, when discussing the application description, both in this section and in the Remarks section, *infra*, rather than to page and line of the specification as filed.

The specification has been amended by capitalizing various registered trademarks.

Claim 11 has been amended by deleting the term “on average.” Claim 14 has been amended by changing “and” to --or-- for components (iii) and (iv), and by deleting superfluous matter. Claim 15 has been amended to depend on Claim 14, to correct the recital of polyetherdiols (i), and to clarify the recital of the Markush group. Claim 19 has been amended by replacing “the” with --an--, before the first recital of “inkjet process.”

New Claims 21-30 have been added. Claims 21-23 are supported by Claim 11. Claim 24 is supported in the specification at paragraph [0026]. Claims 25 and 26 are supported in the specification at paragraph [0028]. Claim 27 is supported in the specification at paragraph [0029]. Claim 28 is supported in the specification at paragraph [0080]. Claims 29 and 30 are supported in the specification at paragraph [0065].

No new matter is believed to have been added by the above amendment. Claims 11-30 are now pending in the application.

REMARKS

The rejection of Claims 11-17 under 35 U.S.C. § 103(a) as unpatentable over US 2002/0071941 (Tsuchida et al) in view of WO 02/38645 (Thetford et al), is respectfully traversed.

Tsuchida et al discloses an ink jet-recording sheet comprising a substrate coated or impregnated with a coating liquid comprising, for example, a polymer or copolymer of diallyl dialkyl ammonium monomers [0011], thereby forming an ink-receiving layer. No textiles *per se* are disclosed as applicable substrates in Tsuchida et al, although non-woven fabric is listed as an exemplary substrate therein [0034]. As noted by the Examiner, Tsuchida et al also discloses the addition of a thickening agent in their ink jet-recording sheet [0041]. However, as acknowledged by the Examiner, Tsuchida et al does not disclose the presently-recited associative thickeners of component (B) herein. The Examiner thus relies on Thetford et al.

Thetford et al discloses “association thickeners” for use in polar media such as paints and inks, including inks for non-contact printing processes such as Drop-on-Demand inkjet printing (page 1, lines 1-4, and page 8, lines 19-23).

The Examiner holds that it would have been obvious to incorporate the thickeners of Thetford et al in the coating liquid of Tsuchida et al “from a finite number of identified and predictable thickeners compatible with poly(diallylmethyl ammonium chloride) to control the rheology of said composition.”

In reply, Applicants traverse the Examiner’s finding of a “finite number” of thickeners to the extent the Examiner intends a relatively small number of thickeners. There are literally at least thousands of compounds disclosed to have thickening properties in aqueous media.

In addition, it is important to consider that the associative thickeners of component (B) herein have a function in addition to thickening, as now discussed.

The line-sharpness of ink-jetted lines on textile substrates achieved with textiles pretreated with an aqueous pretreatment liquor according to the present invention are due to the two main components thereof. The polycationic compound (A), which is preferably a polymer or a copolymer of diallyldialkylammonium monomers, immediately reacts with the anionically dispersed colorant present in the inkjet ink, and immediately immobilizes the colorant particles on the substrate surface exactly where they are printed. The thickener (B) (type (I), (II) and/or (III)) brings about a higher viscosity of the aqueous pretreatment liquor on application of the pretreatment liquor to the textile substrate. However, the thickener has function of not only a thickener. The main function of the associative thickeners of types (I), (II) and/or (III) is that they can provide absorption of water on the textile substrate surface, thus transporting the aqueous part of the ink jetted droplet away from the surface, helping immobilization -- in combination with the above effect exerted by the polycationic material -- to occur.

All three thickener types (I), (II) and (III) have the ability to transport water away from the droplet in that they are hydrophilic in nature. They all contain units "U" which are derived from aliphatic or aromatic alcohols, alkoxylated alcohols, thiols, amines or carboxylic acids, which are hydrophilic moieties. Also the unit "(M)<sub>y</sub>" derived from polyalkylene ether contained in the thickeners of type (I) and (II) are hydrophilic, as well as the unit "T" derived from diisocyanate contained in thickeners of types (I) and (III). All types are bulky substances having relatively high molecular weight, in order to fulfill the function as a thickener. Therefore, an aspect of the present invention is the discovery of all three types (I), (II) and (III) to fulfill the function of both being a thickener, and transporting

water away from the droplet on the textile surface, thereby helping immobilization of the colorant on the substrate.

Thus, it is only with the present disclosure as a guide that one skilled in the art would pick the particular association thickeners of Thetford et al for use as a thickening agent in Tsuchida et al. Viewed somewhat differently, one skilled in the art starting from Tsuchida et al and wishing to solve the problem underlying the present invention might select from various thickening agents but would be given no hint to use an associative thickener as disclosed by Thetford et al.

Furthermore, Thetford et al discloses the use of associative thickeners to give good flow and leveling characteristics to water-borne coatings and latex-coatings under high shear conditions (page 1, lines 6-11). Accordingly, one of ordinary skill in the art would not have considered Thetford et al's associative thickeners as suitable for the pretreatment of textiles to provide absorption of water on the substrate surface and transporting water away from the droplet on the textile surface.

Finally, the International Preliminary Examination Report (IPER) for the corresponding international application found the present invention to be novel and possess an inventive step in view of, *inter alia*, Thetford et al, finding that Thetford et al does not disclose their thickeners for "use in pretreatment baths for preparing textile substrates." While the IPER is not dispositive, it is some evidence of patentability.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 18-20 under 35 U.S.C. § 103(a) as unpatentable over Tsuchida et al in view of Thetford et al, and further in view of US 5,976,673 (Aoki), is respectfully traversed.

The disclosures and deficiencies in the combination of Tsuchida et al in view of Thetford et al have been discussed above. Aoki does not remedy these deficiencies. As

discussed above, Tsuchida et al does not disclose a textile substrate *per se* as an ink jet-recording sheet therein. However, Applicants do not claim to be the first to pretreat a textile substrate prior to inkjet printing thereon. While Aoki discloses such pretreatment, Aoki's pretreatment composition is different from, and not suggestive of, the presently-recited aqueous pretreatment liquor. Aoki's pretreatment composition comprises a thickening surfactant in an amount of from 0.1 to 30% by weight and an aqueous auxiliary for thickening the thickening surfactant in an amount of from 0.1 to 30% by weight, based on the weight of the cloth, respectively (column 2, lines 10-15), which cloth may also contain a water-soluble polymer (column 4, line 45ff). However, none of the components in Aoki are even suggestive of the presently-recited associative thickeners of component (B) herein. Thus, Applicants respectfully submit that one of ordinary skill in the art would not have used the pretreatment coating composition of Tsuchida et al, modified by Thetford et al, to pretreat textile substrates, even if one of ordinary skill in the art were to modify Tsuchida et al with Thetford et al.

For all the above reasons, it is respectfully requested that this rejection be withdrawn.

The rejection of Claims 11 and 19 under 35 U.S.C. § 112, second paragraph, is respectfully traversed. Indeed, the rejection would now appear to be moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the rejection be withdrawn.

The objection to Claim 16 with regard to the term "by weight", is respectfully traversed. Claim 16 recites, *inter alia*, "water ad 100% by weight." This means that to the extent to the percentage amounts for components (a) through (c) are less than 100% in total, then the remainder is component (d) to result in a total amount of 100%. This terminology would be well-understood by persons skilled in the art. Accordingly, it is respectfully requested that the objection be withdrawn.

Application No. 10/529,078  
Reply to Office Action of February 27, 2008

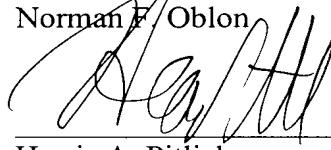
With regard to paragraph 1 of the Office Action, the listed trademarks have been capitalized.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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